A Note on the Concept of "Hypertext"

by [Johan Svedjedal]

Literary theorists have excelled at different definitions of the concept of "text." In handbooks of literary theory, "text" may mean discourse (or work of art), the most authoritative version of this discourse, or any system of signs – not to mention more arcane meanings.[1] Presumably, this very wide use of the term text (text as just about anything that can be interpreted) reflects an aesthetic – the belief that there really are no autonomous works, no organic forms, and that everything created by man really is a flow of signs.[2]

Roland Barthes has provided the most influential definition along these lines. In "From Work to Text," Barthes outlined the properties of what he called the "Text," a text with a capital T. According to him, the difference between work and text is that "the one is displayed, the other demonstrated; likewise, the work can be seen (in bookshops, in catalogs, in exam syllabuses), the text is a process of demonstration, speaks according to certain rules (or against certain rules); the work can be held in the hand, the text is held in language, only exists in the movement of a discourse (or rather, it is Text for the very reason that it knows itself as text); the Text is not the decomposition of the work, it is the work that is the imaginary tail of the Text; or again, *the Text is experienced only in an activity of production*."[3] This definition is somewhat abstruse, but seems to be an inversion of the usual distinction between work and the text (i.e., the work of art and its actual manifestation in letters and punctuation marks). Furthermore, definitions such as this one are riddled with value judgments. In general, they aim to draw distinctions between "good" and "bad" literature, between "complex" and "simple" forms of fiction. This is helpful if you are interested in the aesthetic stratification of literature (what is good, what is bad; what is in, what is out; what is enjoyable, what is boring), but not very helpful as technical definitions go.

Instead, the most useful definitions of the concept of text are to be found in textual criticism, where the main accepted distinction is between "work" and "text" – that is, between the abstract artistic entity and its appearance or realization. The "work"

Hamlet, for example, can appear in many forms when printed: for instance, as a facsimile impression of one of the original editions, as a textual edition, or as a modernized version with present-day orthography. These texts will inevitably vary in different ways, namely in wording, spelling, and punctuation. Such differences may be large and vital, but they do not mean that the work *Hamlet* has been changed – the paradox being, however, that the work only can be glimpsed through the text (or through different texts). To further complicate the matter, a work may exist in several versions produced by the author and creating different aesthetic effects.[4] One example is August Strindberg's semi-autobiographical novel *Inferno*. Strindberg wrote the work in French and had it edited by a friend in France. Waiting for the publication in French, Strindberg rewrote *Inferno* and had it translated into Swedish, without checking the translation before it was printed. Furthermore, the publisher demanded some changes, and there were misprints and mistakes in the printing process, most of which (but not all) were rectified in the second Swedish edition. This leaves us with two versions of the work *Inferno*, manifested in different texts (manuscripts, the published original editions, critical editions).[5]

This is one example of how works can exist in several versions, and how each version can be manifested in several texts. This distinction between "work" and "text" clarifies how a literary work – such as *Hamlet* or *Inferno* – can suffer textual corruption through unwarranted changes and misprints, but still be the same artistic entity. It also explains how the same work can be adapted to different media like radio, films, and television. The same work lies behind the Swedish translation of Jane Austen's *Pride and Prejudice* and the BBC miniseries (although the Swedish translation is a much more faithful rendering of the work). Similarly the film *Primary Colors* is a new version of the novel with the same title. As textual scholar G. Thomas Tanselle remarks:

> *Although the communication of literary works requires*
> *such vehicles as sound waves or the combination of ink*
> *and paper, the works do not depend on those vehicles*
> *for their existence: it has often been pointed out that a*
> *literary work is not lost through the destruction of every*
> *handwritten, printed, and recorded copy of it, so long as*
> *a text remains in someone's memory.*[6]

In passing, it should be noted that literary theorists customarily direct their attention towards the "work" in this meaning of the word, albeit using the word "text" and "work" synonymously. Often, this leads to hopeless confusion of tongues in discussions of textual variants, in attempts at theoretical discussion, and even in literary interpretation.

Clearly, the concept of "work" may also be applied to other forms of artistic creations than literature – to paintings, music, films, ballet, architecture, and so on. One main distinction may be made between works that are mainly temporal and those that are mainly spatial. But in reality, all arts have both temporal and spatial properties. A poem may be written to be read from beginning to end, but certain structures may nevertheless be perceived as a single item, even if the elements are dispersed throughout the poem (i.e., ideas, imagery). A building may seem a purely spatial work of art, but, inevitably, is changed over time – rebuilt, weathered, worn by use. Spatiality and temporality are not properties exclusive to any of the arts.

Most textual scholars tend to subscribe to the view that works in all arts are realized through texts – a novel being a text in the same way as a film, a cathedral, or a ballet performance. This is, in essence, semiotic thinking. "All works of art have texts, whether usually called by that name or not," claims G. Thomas Tanselle,

> *...for they all consist of arrangements of elements; and*
> *all can be the objects of emendation, for those elements*
> *(or their arrangements) can always be altered,*
> *producing different textures.*[7]

As D. F. McKenzie has remarked, the principles of textual criticism are valid for films in the same way as for books. Cuts in different versions of *Citizen Kane* are made in the same way that some novels are shortened when reprinted, or in some cases have deleted passages reinstated.[8]

From this distinction between "work" and "text," the concept of "hypertext" may be analyzed as a certain type of text, manifesting a certain type of work.

Literary works of fiction are generally structured monosequentially, meant to be read from beginning to end – the reader starting at page one of a novel and reading on until the end, the poem building up line by line, stanza by stanza, the scenes of a play being seen in a certain order. Besides these established artistic forms of monosequential works, there are also multisequential works – works consisting of parts, each one monosequential but intended to be read in random order, in different sequences each time.[9]

Until a few years ago, it would have been laborious (if not impossible) to find such multisequential literary works. Surely, works of narrative fiction are written for monosequential reading?

Of course, there were always printed narrative works, proving the opposite. Raymond Queneau constructed a poetry book working as a random generator of poems by combining 140 different lines to compose 10^{14} different "sonnets" (or, as Espen J. Aarseth puts it, 140 "scriptons" to create 10^{14} "textons").[10] Furthermore, there are role-playing games in book form, works where the reader can take different routes, making choices and jumping between pages according to instructions. Such printed works are constructed to be read (or used) multisequentially. However, they were always marginal phenomena, hovering on the fringes of the literary world. In recent years, the understanding of the relationship between literary works and sequentiality has been enhanced by discussions of hypertexts, ignited by the advent of the Internet and various new possibilities for linking fragments of texts, creating new kinds of multisequential works. Gradually, the notion of literary works having an inherent monosequentiality has been called into question, and has perhaps even irreversibly exploded.

Inevitably, there has been some confusion over the concept of hypertext. For some scholars, "hypertext" seems to be entirely linked to the Internet or other digital environments. Thus, Ilana Snyder, editor of the book *Page to Screen* (1998) maintains that the concept of hypertext is restricted to a certain technology. "Hypertext is an

information medium that exists only online in a computer."[11] One may observe that this definition, however, does not exclude even hypertexts that are digital but not online, for example in certain writing programs like Storyspace or on CD-ROMs. A similar definition is suggested by George P. Landow, who also restricts hypertexts to computers. For him, a hypertext is a "text composed of blocks of text […] and the electronic links that join them."[12]

According to such definitions, a hypertext is unthinkable outside of a digital environment – although Landow aptly observes that a digital hypertext essentially employs the same kinds of links as a scholarly article (where the reader jumps between the main text, footnotes, bibliography, perhaps also following up references in other sources).[13] The same parallel could be drawn with newspapers and magazines (the reader following an article from page one to another page in another section) or a critical edition of a literary classic (with introduction, textual and explanatory notes).

A wider – and in my opinion more reasonable – definition, therefore, sees the hypertext as a certain structural form, possible to achieve in any medium, but nevertheless best realized when texts are digitized and available in computer networks. This seems to be what Ted Nelson had in mind when he first coined the word in 1965.[14]

In the large body of literature surrounding hypertexts, some basic properties have been noted, delineating the hypertext as something of a fulfillment of the promises of poststructuralism. As George P. Landow, a main proponent of this idea, says: "over the past several decades literary theory and computer hypertext, apparently unconnected areas of inquiry, have increasingly converged."[15] Hypertexts offer readers many paths and have no fixed structure. They may be called non-linear, multilinear, nonsequential, multisequential, or multicursal, the point always being that traditional literary works are nearly always linear or monosequential.[16] Such multisequential hypertexts may be said to be "writerly" rather than "readerly" in Roland Barthes's sense of the word. Freed from the restraint of the author's way of structuring the work, the reader can make his or her own choices.[17] Hypertexts are intertextual by their very nature, linked to other texts in a vast web of connections. As works of art, they are open, fluid, interactive. All this means, as George P. Landow points out, that important literary concepts must be reconceptualized in the light of hypertexts. Who, for example, is the "author" when the "reader" jigsaws the pieces of an omnidiscourse together in his or her own unique way? One defining characteristic of electronic environments is agency – the user's own activity, or participation in the construction of the real discourse. "Agency is the satisfying power to take meaningful action and see the results of our decisions and choices," observes Janet H. Murray, and goes on to discuss the various forms of navigation, problem solving, and story construction that are sometimes lumped together as "interactivity."[18]

As Espen J. Aarseth notes in a wide-ranging book, hypertext is in reality a subform of a larger body of literary forms. Aarseth labels them "cybertexts" and "ergodic literature," concepts, which in his use replace the commonly used "interactivity." These cybertexts and this ergodic literature are perfectly possible to write (or construct) both in paper form and in digital form, and the concepts are much broader than the traditional "novel" or "narrative fiction." For example, the concepts "cybertext" and

"ergodic literature" also include adventure games. A cybertext, according to Aarseth, is a "text" where the reader is asked to make choices that affect the layout and structure of the "text." Cybertexts are texts containing "an information feedback loop" and ergodic literature is literature where these kinds of choices are made. "In ergodic literature, nontrivial effort is required to allow the reader to traverse the text."[19] This observation echoes, as Aarseth justly remarks, Michael Joyce's distinction between exploratory and constructive hypertexts, that is, hypertexts that can be merely explored versus hypertexts that can be changed.[20] Both may be called "interactive" since they ask the reader to participate. However, the quality of the participation is different. Metaphorically, it is the difference between exploring a house and building it.

As Aarseth notes, it is a commonplace to hold that all literature is indeterminate in its meanings, and therefore more or less affected by the reader's choices and interpretations. But cybertexts and ergodic literature are something more. At certain points, they require active participation from the reader: the choice of a certain path, the choice between objects, the clicking of one word in a group of several clickable words. Ergodic literature consists of works like MUD games, CD-ROM games like *Riven* and hypertext novels like Michael Joyce's *afternoon*. But newspaper articles, scholarly articles, or textual editions belong to non-ergodic literature. True, they have links, and so are "hypertexts." But in reality, they do not ask for active participation from the reader to yield a reading experience. Following the links is fairly mechanical, requiring only trivial effort.

These distinctions seem to clear up some of the uncertainty surrounding the concept of hypertext. A recurring problem in the discussions of hypertexts is, however, the inability to distinguish between "work" and "text," the concept "hypertext" generally standing for what I would suggest should rather be called "hyperwork." Otherwise, the crucial distinction between the abstract artistic entity and its physical manifestation breaks down. Even a theorist as accomplished as Espen J. Aarseth uses the word "text" in a rather slipshod way, forcing the concept to embrace both "a material medium as well as a collection of words," but failing to introduce a general term for the artistic entity behind the text. This leads to confusing statements like his description of an interactive work: "Thus the text output is influenced [by the reader's choices] and will be different for each copy of the text. Is it still the same text?" The answer, of course, is: it is the same work but not the same text.[21]

In my opinion, the distinction between "text" and "work" should be preserved, facilitating discussions of the relationship between hypertexts and literary creations, published on the Internet, on CD-ROM and other digital media. Hyperwork, then, seems the inevitable term of choice. In most cases, hyperworks are, of course, manifested as hypertexts. One example is Michael Joyce's *afternoon*, conceived and written with digital links and published in digital form. But in some cases, non-hyperworks are published as hypertexts, the textual edition being the most distinct example, both in book form and in digital form (on the Internet or on CD-ROM). Jane Austen's *Pride and Prejudice* was never conceived as a hyperwork by its author; the novel was written for monosequential reading, without links and instructions for readerly jumps between different parts of the text. But several latter-day textual editions have opened these possibilities, by linking introductions and explanatory material to the main text. This goes both for editions in book form and for online

versions on the Internet. When using a critical edition in codex format, the reader jumps between the text of Austen's novel and the explanatory notes; when using the Internet version, the reader follows links, leading to various clickable lists and commentaries.

Nearly all non-hypertextual narratives are structured for monosequential reading, like *Pride and Prejudice*. They are meant, quite simply, to be read from beginning to end, following the discourse as it unfolds page by page. This is more or less self-evident: the way we have all been trained to read. But this convention (which goes in an eternal loop from writing to reading) generates powerful narrative effects which may be impossible, or at least difficult, to sustain in hypertexts. These effects have to do with the reader's interest in what might provisionally be called the story, the sequence of events revealed in the discourse.

In the kind of story represented by Arthur Conan Doyle's Sherlock Holmes story "The Speckled Band," the reader has but a slim chance of seeing through the author's ruses. To follow the discourse monosequentially is the main point to reading a murder mystery. The same goes for most narrative fiction, from quality fiction to soap operas – the latter category ideally structured so that suspense and curiosity (narrative questions concerning the outcome of the action and the hidden secrets in the narrative past) will keep the viewer glued to the screen even during the commercial breaks. This monosequential writing and reading – following a given temporal structure, experiencing certain kinds of narrative drives, carefully planned by the author – is challenged by hyperworks devised to be read in random order. How can an author create suspense and curiosity when there is no fixed temporal structure, when the work is multisequential?

The conservative answer is that it depends on how the hyperwork is structured. To use the concepts employed in this chapter, the various content fields in Michael Joyce's *afternoon* raise a number of questions of suspense and curiosity that are answered when the reader has navigated the story long enough. The artistic challenge in constructing the story is not least to block the reader from arriving at the answers too quickly (thus slackening the narrative drive). In practice, most multisequential hyperworks seem to be structured in this way – structurally preventing the reader from taking shortcuts from question to answer. This is exactly how the "guard fields" work in Storyspace.

In theory, there is a continuous scale, where at the one end are hyperworks mainly meant to be read monosequentially, and at the other hyperworks intended to be read multisequentially and in random sequence. This may be seen as a gradual scale of multisequentiality, from zero to the largest possible number. It also roughly corresponds to the polarity between non-ergodic and ergodic works. However, returning to the distinction between works and texts, it should be noted that there is also a hypertextual scale, going from the monosequential structure to the multisequential. The possibilities for creating suspense and curiosity vary depending on the degree of multisequentiality.

Naturally, there is a strong correlation between these two scales (some works are, for all intents and purposes, designed to be presented as monosequential texts, and some as multisequential), but, obviously, a multisequential work could be presented as a monosequential text, and a monosequential work could be manifested as a multisequential text. These combinations are a peculiar textual double-entendre,

admittedly possible to achieve in the past, but more evident in these days of digital hypertexts. At least in theory, multisequentiality seems feasible for all kinds of works, novels written for monosequential reading suddenly fragmented, their story lines branching off in various directions. This is truly radical hypertextuality – ergodic multisequentiality enforced on monosequential non-hyperworks. A work written for maximum suspense and curiosity, then, may be read in a new way, with the identity of the murder exposed in the first paragraph, the identity of the narrator not disclosed until the last page. And so, effects of suspense and curiosity are not governed mainly by the author's choices, but rather by the reader's structuring of the text. We tend to think of literature as a texture of compelling rhetorical structures; as digital hypertexts, however, literature seems to be more like a box of Lego, ready-made elements for the reader to assemble as he or she chooses.

There are four possible combinations between hyperworks and hypertexts, all achievable both in printed form (books, magazines, etc.) and in digital media (the Internet, CD-ROM, etc.). Except for the first category (A), there can be both ergodic and non-ergodic works within each category:

Patterns of multisequentiality in combinations of hyperworks and hypertexts.

	Non-hypertext	Hypertext
Non-hyperwork	A	B
Hyperwork	C	D

Some commentaries on the different categories may be necessary.

A. Non-hyperworks in non-hypertextual form. Traditionally structured works, published without links. Virtually all new novels are of this kind (i.e., P. D. James's latest Dalgliesh mystery or Salman Rushdie's latest novel). The majority of literary classics published on the Internet also belong here, since they lack links within the texts.

B. Non-hyperworks in hypertextual form. For example, critical editions of literary classics or newspaper and magazine articles. These texts all have links, but the links are not written into the works. One example is the Cambridge textual edition of *The Great Gatsby*, where the explanatory notes are signaled in the text by an asterisk; another is the online version of Jane Austen's novels, where similar links are visible as the familiar blue text, representing click-through possibilities. As mentioned earlier, such hypertexts are non-ergodic, since the links are structured in ways that force the reader back to the main text. However, ergodic variants are also possible. In a non-hyperwork, presented as a truly multisequential hypertext, the reader would always have the option of clicking through to other parts of the story, reading the "end" at the "beginning," or following certain threads through the story (a subplot, characterizations of an individual person, descriptions of a particular place). This would be an ergodic version of the work – a non-hyperwork masquerading as a hyperwork. It is, for example, perfectly possible to link up "The Speckled Band" in this way, beginning with the title (arriving at the solution in five easy clicks). However, the strong monosequential convention governing detective stories prevents this kind of linking in practice. Quite plainly, such links would ruin the pleasure of reading the work, degrading it from a sophisticated machine for production of suspense and curiosity to a Lego box of do-it-yourself assemblage. And

still, the monosequential convention seems to be much stronger than the hypertextual possibilities.

C. Hyperworks in non-hypertextual form. An example would be a work consciously written for the hypertext environment but printed out and frozen in time, as it were, on paper. This version, which is more or less what one gets as printouts from the Internet via desktop printers, might be called stifled ergodic literature. It verges on the borderline of the non-ergodic. The links are visible on paper, perhaps even with directions for jumping to other parts of texts. But the parts (or the fragments) of the work follow one another in a fixed way, which gives the text a rigid structure and destroys the fluidity of the work. It is perfectly possible to print and read Michael Joyce's *afternoon* in this way. On paper, not a word of the work is changed, but the whole set of living relationships between its parts is utterly lost.

D. Hyperworks in hypertextual form. These are works of the type commonly known as hypertexts – works specifically written for hypertextual presentation, in print or in digital form. As mentioned earlier, a non-ergodic form is a scholarly article with quotations, footnotes, and bibliography. Ergodic forms are works like Michael Joyce's *afternoon*, used and read in their digital environments. In such ergodic and multisequential hyperworks, the links are written into the narrative, not imposed on it afterwards. This makes for new forms of writing, new ways of creating suspense and curiosity. But it should be noted that such works may not be written to be read in a totally random order – there is often a clear beginning (of the discourse) and various ways in which the reader is prevented from reaching closure (the final parts of the story) too soon. For example, a work like Michael Joyce's *afternoon* is structured with a series of guard fields devised to prevent the reader from arriving at the end, or closure, too soon. Random reading is not necessarily offered by multisequential, ergodic hyperworks.

In fact, the majority of literary texts available on the Internet are of the kind included in categories A and B. They are monosequential works, presented as monosequential texts (or hypertexts) in non-ergodic forms. Many of these texts are literary classics. Consequently, these texts maintain the original temporal structures in the works. Since these works are written for certain effects of suspense and curiosity (as I have defined the concepts), the digital versions and texts faithfully retain these effects. You do not click your own way through "The Speckled Band"; you read it from beginning to end (perhaps glancing at the commentaries). The same goes for many literary works originally published on the Internet. They do not make use of the ergodic possibilities (links, multisequentiality) offered by the Net. Instead, they emulate the structure of texts in printed books. And so they retain the traditional possibilities for creating suspense and curiosity.

Such Internet-published classics – no matter whether they are just scanned into computers as raw texts, or heavily annotated like the Internet-version of *Pride and Prejudice* mentioned earlier – are a means of filling a new medium with works written for an old one. True, it has always been possible to write multisequential and ergodic works in book form. But the very nature of the medium disposes it for monosequential reading (beginning at the first page of the volume and reading to the last page, always with a sense of how much remains of the narrative). This kind of reading is based on

effects of suspense and curiosity, the double helix of narrative, the questions concerning "What then?" and "Why?".

Multisequential literary works in book form have seldom been more than freak experiments, thrusts at the borders of what the book offers. The conventional narrative in book form has a fixed temporal structure – as opposed to the hyperwork, where temporality is by definition fluid or even suspended. In the ergodic hyperwork, reading is building your own temporal structure. Sometimes this means following the author's directions, deeply embedded in the link structure, other times it may mean reading in random order. In such randomly and readerly structured works, suspense and curiosity are something quite different from the closely calculated artistic devices of the kind usually employed in printed literary works.

Truly, the book containing narrative fiction is a prime example of the medium being the message. The message being: read monosequentially!

(To the top)

About the author

Johan Svedjedal is a Professor of Comparative Literature and holds a chair at Uppsala University, where he is also head of the Section for the Sociology of Literature. He has published several books on the history of the book trade and on the relationship between authors and their audiences. His publications also include several articles on literary theory, mainly concerning the sociology of literature. This article draws on his The Literary Web: Literature and Publishing in the Age of Digital Production, which will be published in January, 2000.

(To the top)

Notes

1.   Cf Wendell V. Harris, *Dictionary of Concepts in Literary Criticism and Theory*, Reference Sources for the Social Sciences and Humanities, 12 (New York: Greenwood Press, 1992), pp. 407–410. (Back to the text)

2.   Cf Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism*, Post-Contemporary Interventions (Durham: Duke University Press, 1991), p. 77. (Back to the text)

3.   Roland Barthes, "From Work to Text," *Image, Music, Text: Essays*, sel. and trans. by Stephen Heath (London: Flamingo, 1984), 155–164, p. 157. (Back to the text)

4.   Cf James Thorpe, *Principles of Textual Criticism* (San Marino: The Huntington Library, 1972), p. 185. (Back to the text)

5.   August Strindberg, *Inferno*, ed. Ann-Charlotte Gavel Adams, Samlade Verk, 37 (Stockholm: Norstedts, 1994), pp. 321–25, 354, 367f. (Back to the text)

6.   G. Thomas Tanselle, *A Rationale of Textual Criticism* (Philadelphia: University of Pennsylvania Press, 1989), p. 17. (Back to the text)

7.   Tanselle 1989, p. 18. (Back to the text)

8.   D. F. McKenzie, *Bibliography and the Sociology of Texts*, The Panizzi Lectures 1985 (London: The British Library, 1986), pp. 53–56. (Back to the text)

9.   Some scholars define "text" by differentiating between works that are sequential (that is, temporal) and works that are non-sequential (that is, spatial). The Swedish bibliographer Rolf E. Du Rietz has suggested a definition of the concept of text along these lines: "A text is the sequence in a sequential work." (Rolf E. Du Rietz, "The Definition of 'Text'" *Text: Swedish Journal of Bibliography* 5:2, 1998, 50–69, p. 57; cf p. 67.) In Du Rietz's view, a text is always an abstraction, not a tangible, physical object (what he calls the "material text," i.e., the printed words on a page), but this abstraction is characterised by its temporality, by one part coming before another. Nothing prevents however, at least as I see it, a definition like Du Rietz's from accommodating multisequential literary works. All the individual parts of a multisequential work must appear as texts, but it is of no consequence for these parts' status as texts that they can be assembled in a different order at each reading. On problems in Du Rietz's definition of "text" cf Mats Dahlström, "När är en text?," *Tidskrift för dokumentation* 54:2, 1999, 55–64, pp. 59–61. (Back to the text)

10. Raymond Queneau, *Cent mille milliards de poèmes* (Paris: Gallimard, 1961). Cf Espen J. Aarseth, *Cybertext: Perspectives on Ergodic Literature* (Baltimore & London: Johns Hopkins U.P., 1997), p. 62. (Back to the text)

11. Ilana Snyder, "Beyond the hype: reassessing hypertext" *Page to Screen: Taking Literacy into the Electronic Era*, ed. Ilana Snyder (London & New York: Routledge, 1998), 125–143, 126. (Back to the text)

12. George P. Landow, *Hypertext 2.0: being a revised, amplified edition of Hypertext: The Convergence of Contemporary Critical Theory and Technology* (Baltimore & London: Johns Hopkins U. P., 1997), p. 3. (Back to the text)

13. Landow 1997, p. 4. (Back to the text)

14. Cf Sergio Cicconi, "Hypertextuality," *Mediapolis: Aspects of Texts, Hypertexts, and Multimedial Communication*, ed. Sam Inkinen, Research in Text Theory = Untersuchungen Zur Texttheorie, 25 (Berlin & New York: Walter de Gruyter, 1999), 21–43, p. 23. (Back to the text)

15. Landow 1997, p. 2. (Back to the text)

16. For a discussion of these concepts, see Aarseth 1997, pp. 41–47. (Back to the text)

17. Roland Barthes, *S/Z*, trans. by Richard Miller, pref. by Richard Howard, 25th pr. (New York: Hill and Wang, 1998), pp. 4–6 (French orig. publ. 1970). (Back to the text)

18. Janet H. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (New York: The Free Press, 1997), p. 126. (Back to the text)

19. Aarseth 1997, p. 1. (Back to the text)

20. Michael Joyce, "Siren Shapes: Exploratory and Constructive Hypertexts," (orig. publ. 1988), *Of Two Minds* (1995), 39–59. (Back to the text)

21. Aarseth 1997, pp. 21 and 56. (Back to the text)